FIG.1A

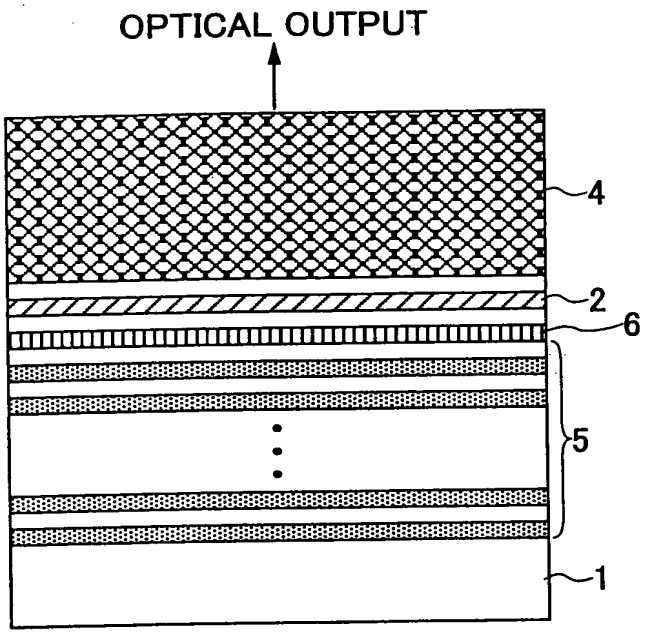

FIG.1B

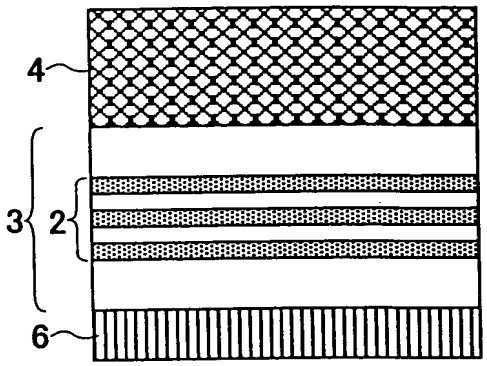

FIG.2A

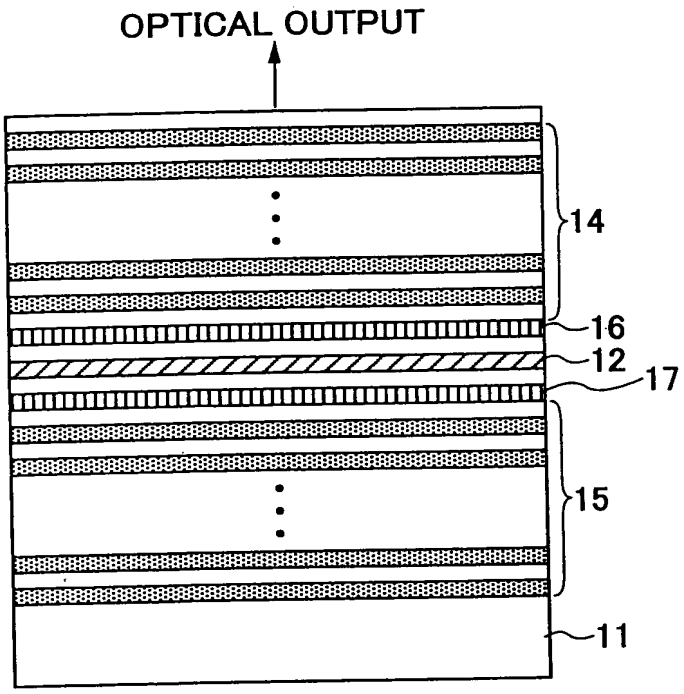

FIG.2B

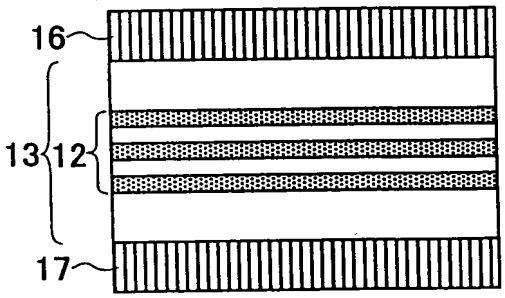

FIG.3A

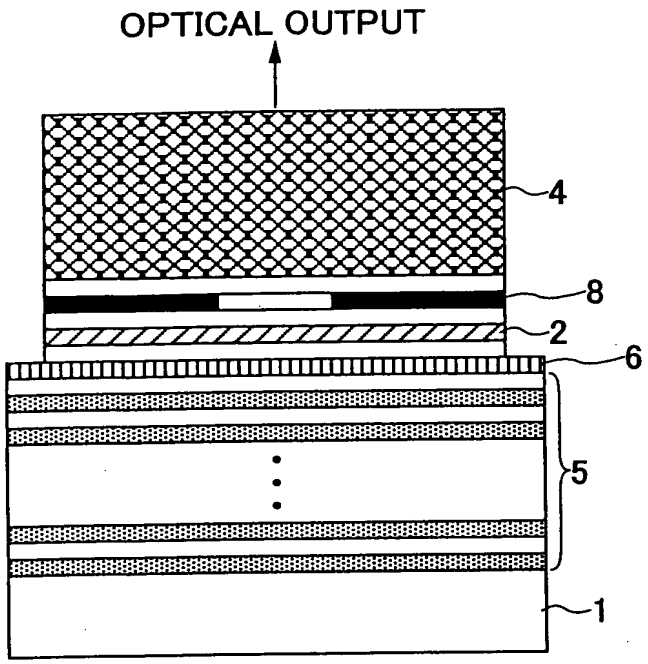

FIG.3B

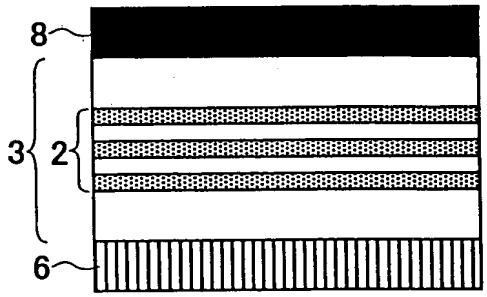

FIG.4A

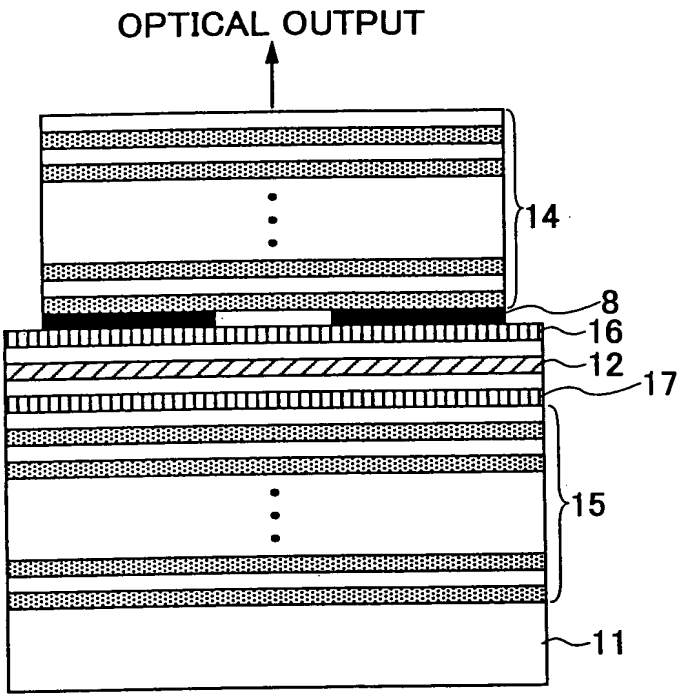

FIG.4B

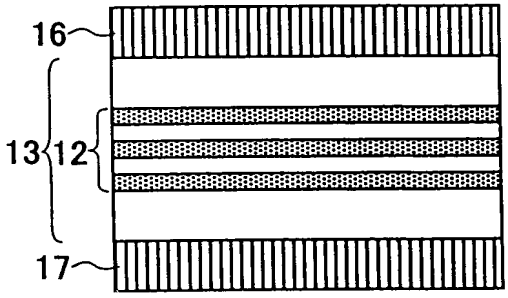

FIG.5

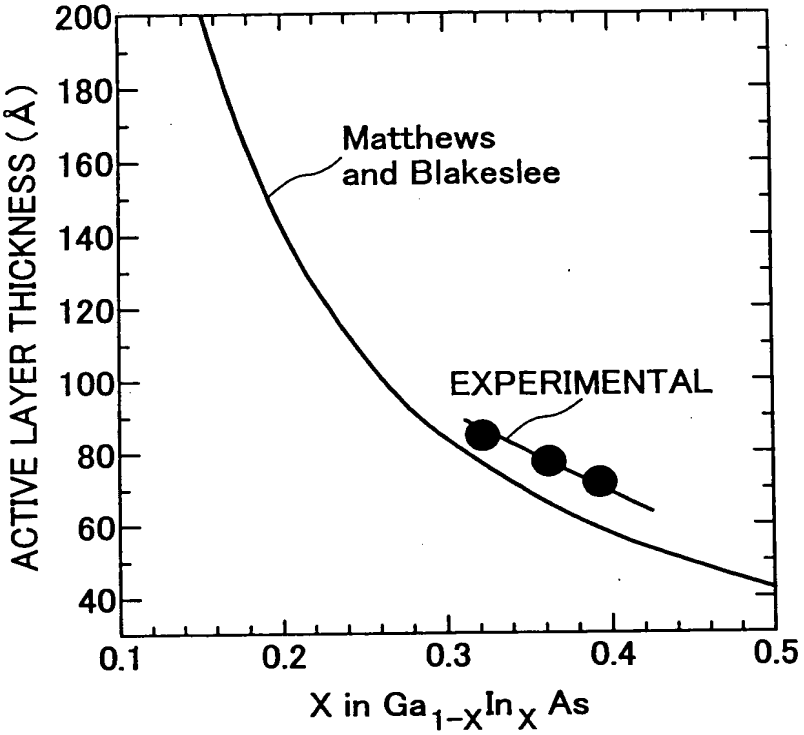
200
180
160
140
120
100
80
60
40
ACTIVE LAYER THICKNESS (Å)
Matthews
and Blakeslee
EXPERIMENTAL
0.1
0.2
0.3
0.4
0.5
X in Ga1-XInX As

FIG.6

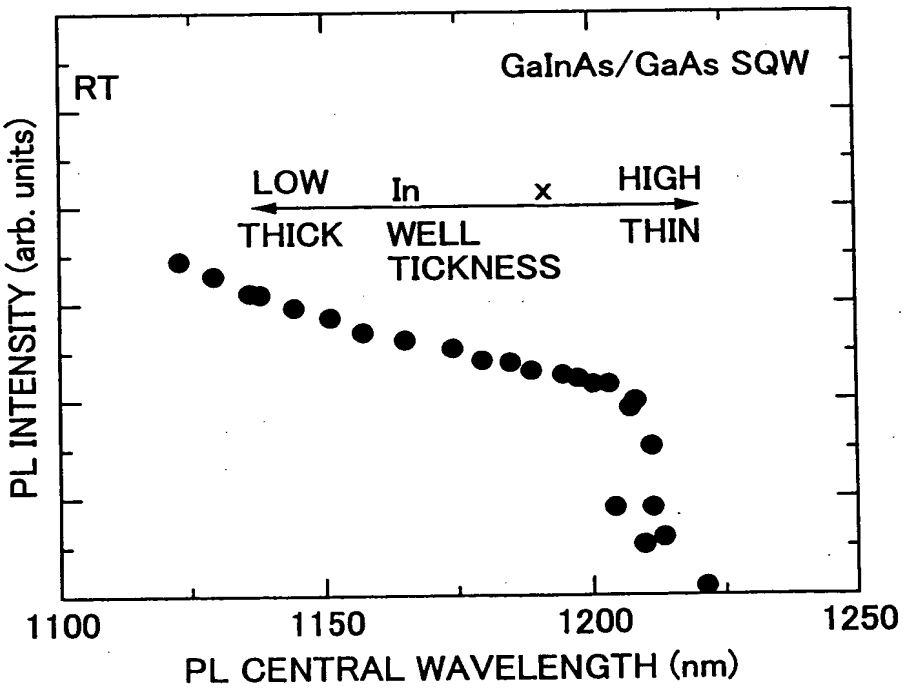
RT
GaInAs/GaAs SQW
LOW In x HIGH
THICK WELL THIN
TICKNESS
PL INTENSITY (arb. units)
1100
1150
1200
1250
PL CENTRAL WAVELENGTH (nm)

FIG.7

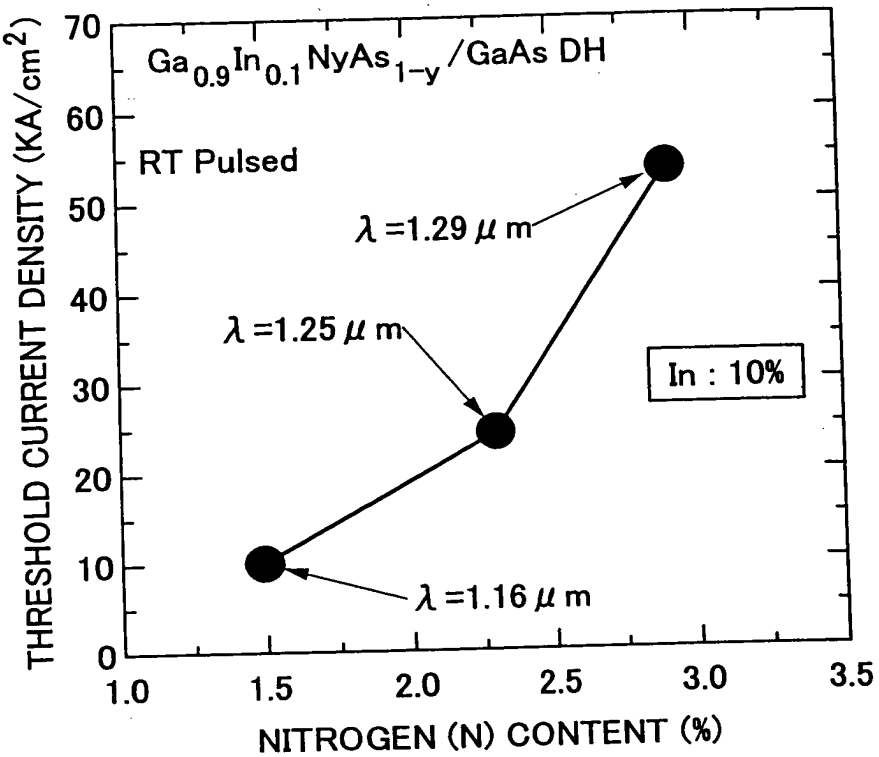
Ga0.9In0.1NyAs1-y/GaAs DH
RT Pulsed
λ =1.29 μ m
λ =1.25 μ m
λ =1.16 μ m
In : 10%
THRESHOLD CURRENT DENSITY (KA/cm2)
NITROGEN (N) CONTENT (%)
0
10
20
30
40
50
60
70
1.0
1.5
2.0
2.5
3.0
3.5

FIG.8

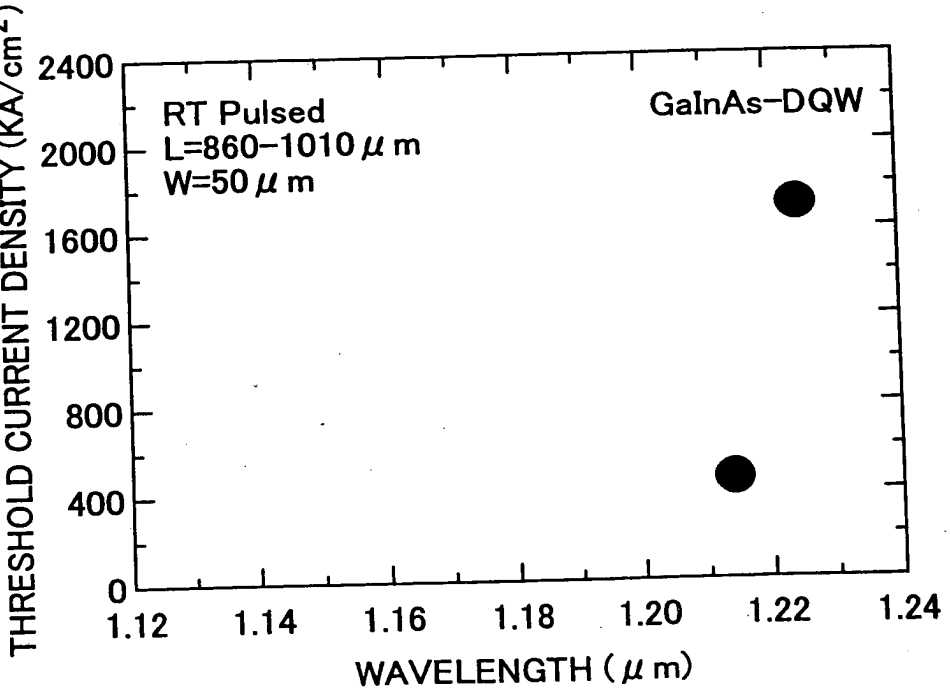
RT Pulsed
L=860-1010 μ m
W=50 μ m
GaInAs-DQW
THRESHOLD CURRENT DENSITY (KA/cm2)
WAVELENGTH (μ m)
0
400
800
1200
1600
2000
2400
1.12
1.14
1.16
1.18
1.20
1.22
1.24

FIG.9A

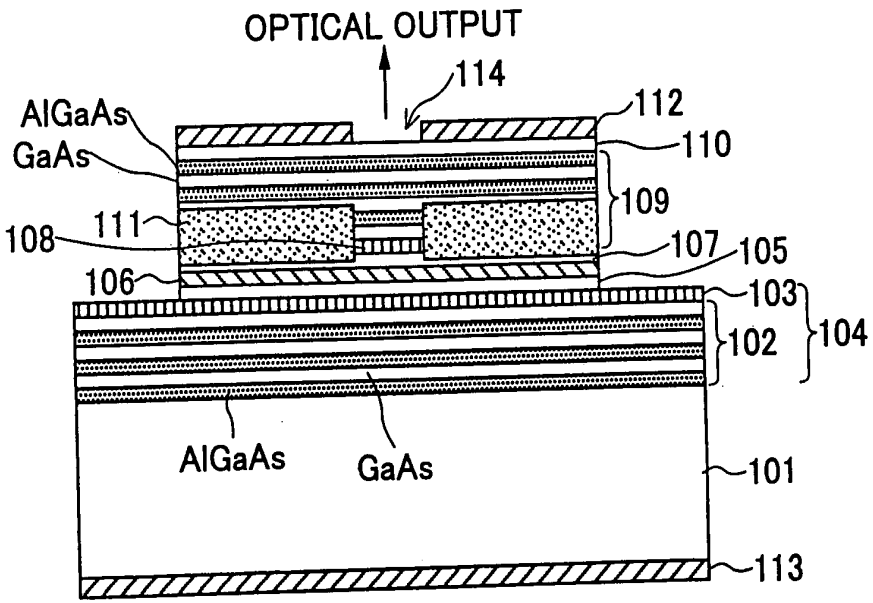
OPTICAL OUTPUT
114
AlGaAs
GaAs
112
110
109
111
108
107
105
106
103
102
104
AlGaAs
GaAs
101
113

FIG.9B

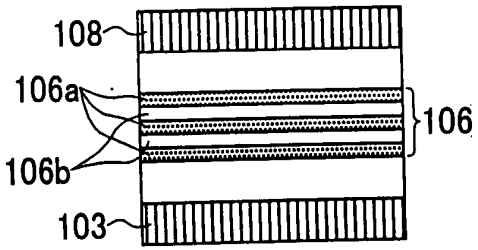
108
106a
106
106b
103

FIG.10A

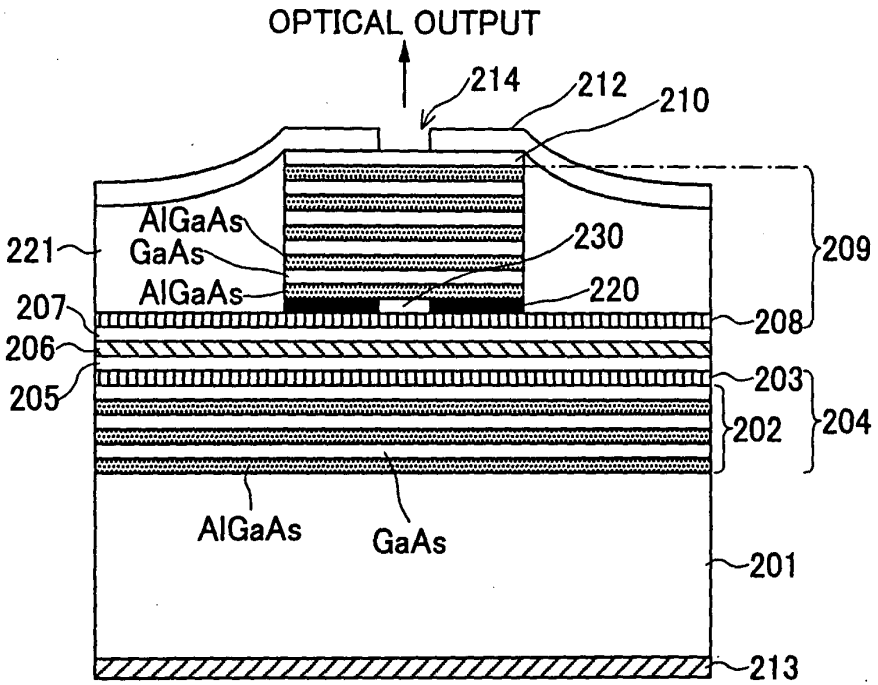

FIG.10B

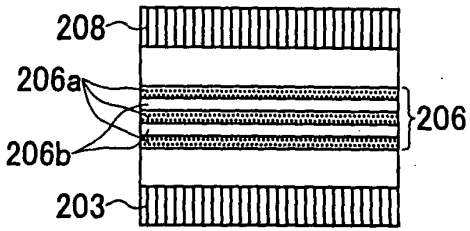

FIG.11

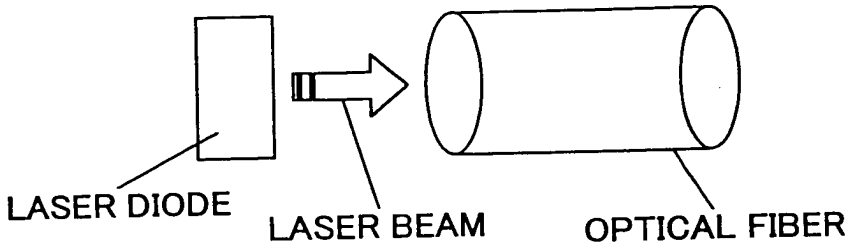

FIG.12

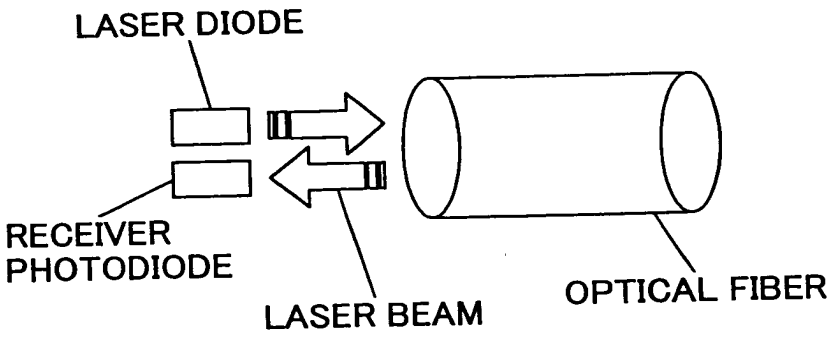

FIG.13

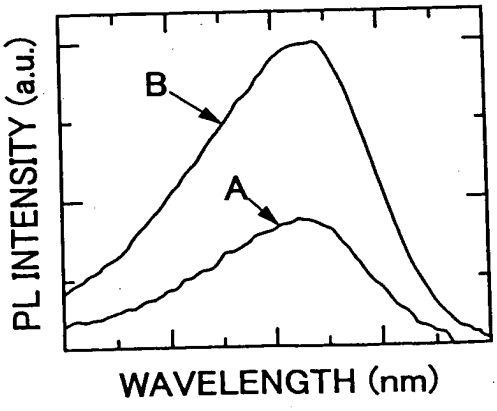

FIG.14

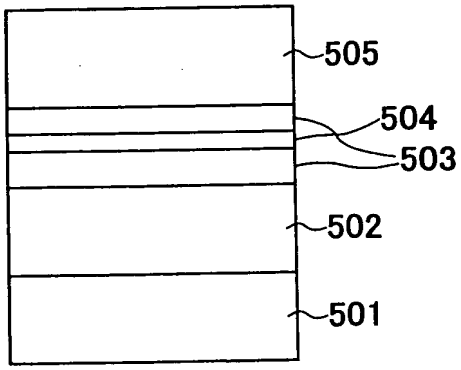
505
504
503
502
501

FIG.15

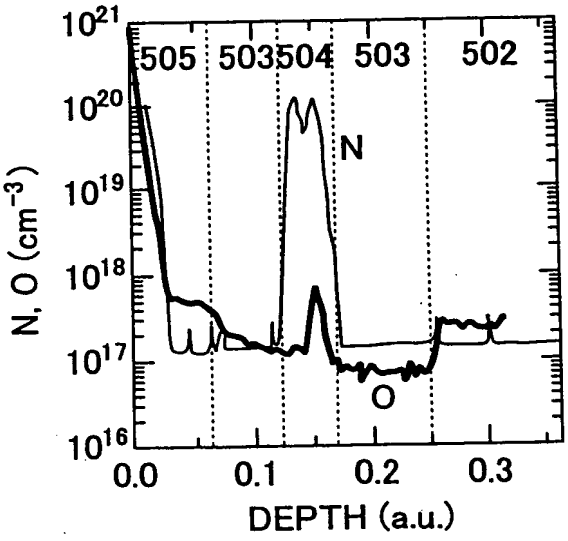
10^{21}
10^{20}
10^{19}
10^{18}
10^{17}
10^{16}
N, O (cm^{-3})
505
503
504
503
502
N
O
0.0
0.1
0.2
0.3
DEPTH (a.u.)

FIG.16

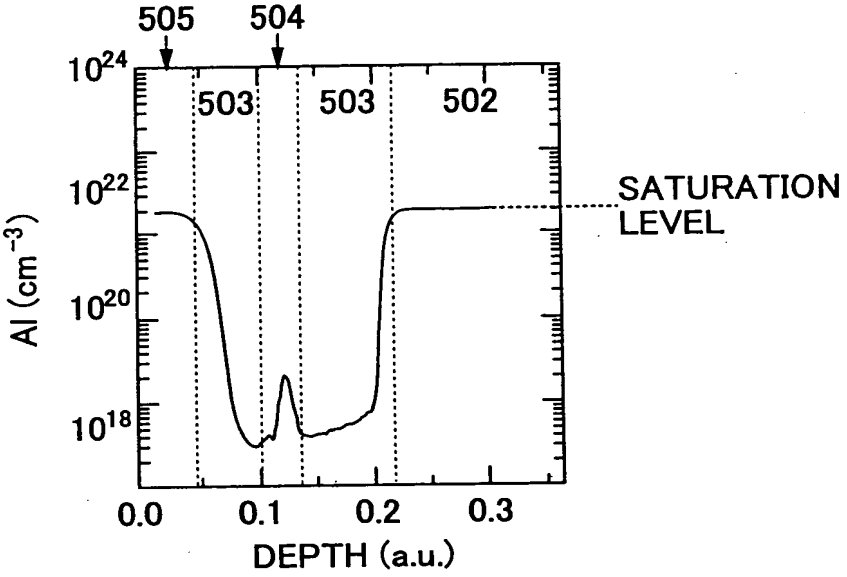
505
504
503
503
502
10^{24}
10^{22}
10^{20}
10^{18}
Al (cm^{-3})
SATURATION LEVEL
0.0
0.1
0.2
0.3
DEPTH (a.u.)

FIG.17

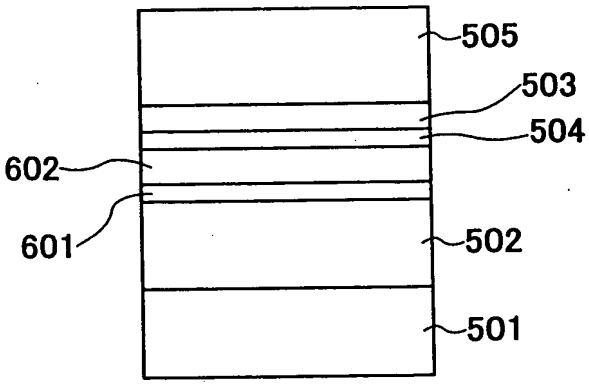
505
503
504
602
601
502
501

FIG.18

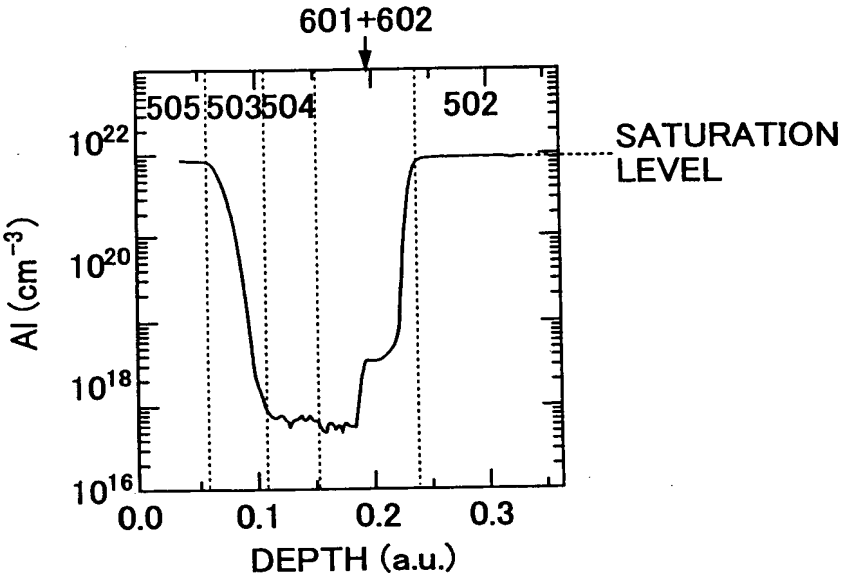
601+602
505
503
504
502
SATURATION LEVEL
Al (cm^{-3})
10^{22}
10^{20}
10^{18}
10^{16}
0.0
0.1
0.2
0.3
DEPTH (a.u.)

FIG.19

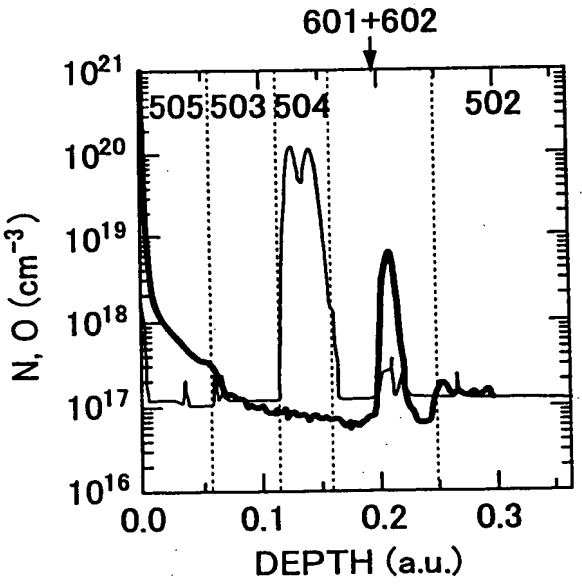
601+602
505
503
504
502
N, O (cm^{-3})
10^{21}
10^{20}
10^{19}
10^{18}
10^{17}
10^{16}
0.0
0.1
0.2
0.3
DEPTH (a.u.)

FIG.20A

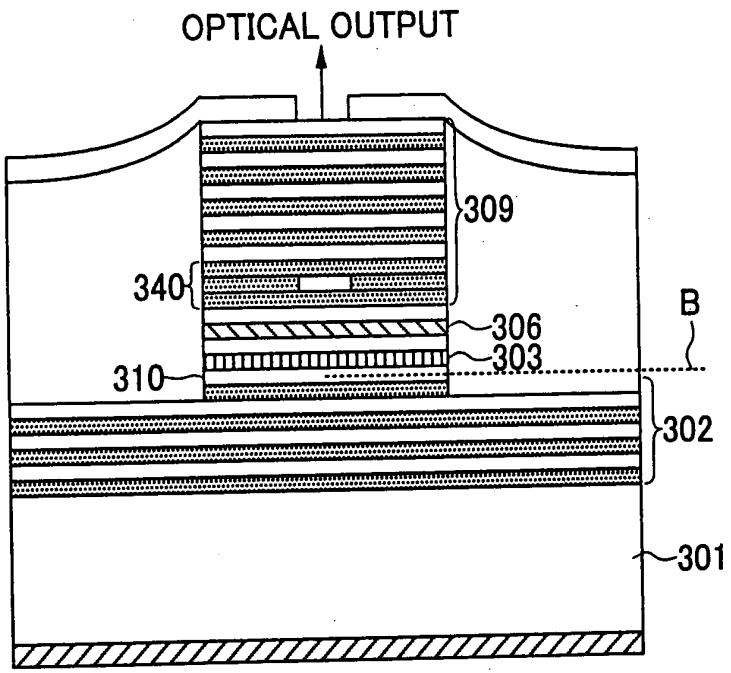

FIG.20B

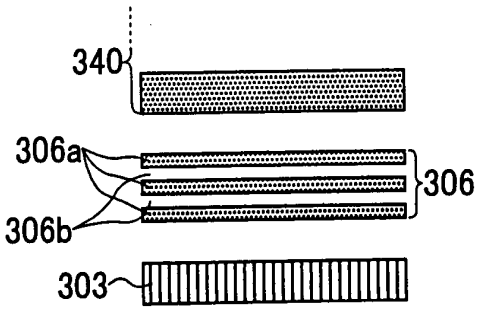

FIG.21A

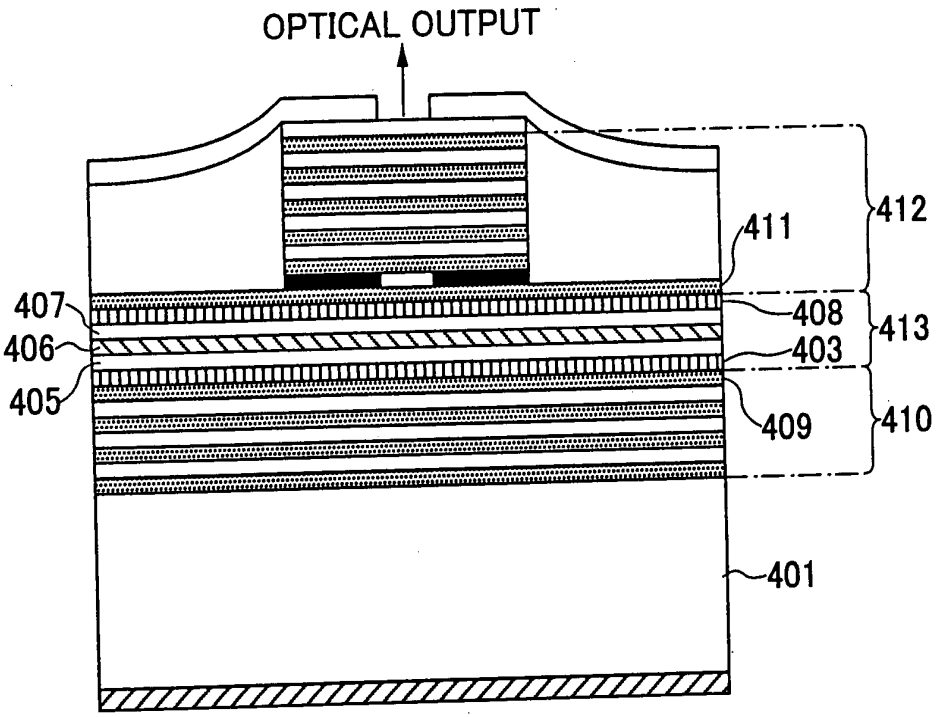
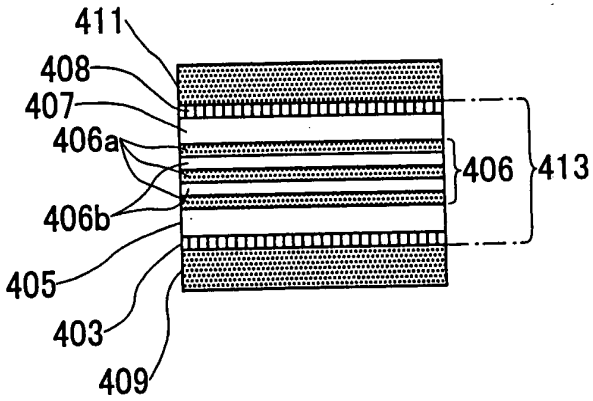
FIG.21B